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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,089

07/13/2006

Willem J. Quadakkers

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EXAMINER

FOGARTY, CAITLIN ANNE

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,089	<b>Applicant(s)</b> QUADAKKERS, WILLEM J.	
	<b>Examiner</b> CAITLIN FOGARTY	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/13/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 1 – 10 are pending and presented for this examination.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

3. The information disclosure statement (IDS) was submitted on July 13, 2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Objections***

4. Claims 3 and 5 are objected to because of the following informalities: The parentheses around "Ni oxide, Fe oxide, Cr oxide or Ti oxide" in claim 3 and the parentheses around "Ni, Fe, Cr or Ti" in claim 5 should be removed in order to clarify whether the contents within the parentheses are a further claim limitation. Appropriate correction is required.
5. Claim 7 is objected to because of the following informalities: line 4 of claim 7 recites "fluorite-containing medium". This is a typographical error and should be replaced with "fluoride-containing medium". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1 – 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alger (US 6,599,636).

With respect to instant claim 1, col. 2 lines 38-64, col. 3 lines 31-33, col. 4 lines 20-31, and Fig. 2 of Alger teach a method for preparing a protective layer for an aluminum-containing alloy by forming on the surface of the alloy an oxide layer exhibiting non-aluminum-containing oxides. The method also includes heating the alloy to between about 870 and about 1050°C, which is within the range recited in instant claim 1, so that the non-aluminum containing oxides on the surface of the alloy inhibit the formation of metastable aluminum oxides and substantially only  $\alpha\text{-Al}_2\text{O}_3$  oxides form.

Alger differs from instant claim 1 because it does not specifically teach that the aluminum-containing alloy is of the Fe-Al, Fe-Cr-Al, Ni-Al or Ni-Cr-Al type. However, col. 4 lines 11-19 of Alger disclose that superalloys and other alloys, metals, and materials that contain about 2% or more of Al and about 2% or more of Ti are also

suitable as substrates upon which to form the protective oxides formed by the invention of Alger. Therefore, it would have been obvious to one of ordinary skill in the art to use the method of Alger on any desired Al-containing alloy containing about 2% or more of Al and about 2% or more of Ti in order to form a protective oxide coating.

In regards to instant claim 2, col. 5 lines 38-53 of Alger disclose that the non-aluminum containing oxide layer has a thickness between about 500 and 1500 nm which is within the range recited in instant claim 2.

Regarding instant claim 3, col. 4 lines 20-65 of Alger teach that Ti oxide is deposited on the aluminum-containing alloy in order to form a non-aluminum-containing oxide layer.

With respect to instant claim 4, col. 2 line 46-col. 3 line 9 of Alger teaches that the deposition of the oxide layer is completed by vaporization and condensing.

In regards to instant claim 5, col. 2 line 46-col. 3 line 9 of Alger discloses that in order to form the non-aluminum-containing oxide layer, Ti is deposited on the aluminum-containing alloy so that an oxide layer of Ti forms in an oxygen atmosphere.

Regarding instant claim 6, col. 2 line 46-col. 3 line 9 of Alger teaches that the deposition of the oxide layer is completed by vaporization and condensing.

With respect to instant claim 10, col. 2 lines 38-64 of Alger disclose that the aluminum-containing alloy is in an environment with a temperature between about 550 and 1100°C which overlaps with the range recited in instant claim 10. Additionally Alger discloses that a corresponding oxide layer forms at the surface of the aluminum-containing alloy from an alloy metal (Ti) that is not aluminum.

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9. Claims 7 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alger (US 6,599,636) in view of the *ASM Handbook*.

Alger is applied to instant claim 1 as discussed in the rejection above.

Alger differs from instant claim 7 because it does not teach that the non-aluminum containing oxide layer is formed when an aluminum-containing alloy is introduced into a chloride- and/or fluoride-containing medium. However, it is well known in the art as evidenced in p. 394 of Volume 13 of the 1992 9<sup>th</sup> Edition *ASM Handbook* that a non-aluminum-containing oxide layer may be formed when an aluminum alloy is immersed in a bath containing fluoride. Therefore, it would have been obvious to one of ordinary skill in the art that the method disclosed in the *ASM Handbook* would be an alternative method of forming a non-aluminum containing oxide layer on an aluminum alloy in order to form a protective layer.

Alger differs from instant claim 8 because it does not teach that the aluminum-containing alloy is introduced into the medium over a period of one minute to 5 hours. However, p. 394 of Volume 13 of the 1992 9<sup>th</sup> Edition *ASM Handbook* teaches that the aluminum alloy is introduced into the bath over a period of 1 to 3 minutes which is within the range recited in instant claim 8.

Alger differs from instant claim 9 because it does not disclose that the aluminum-containing component is introduced into the medium at temperatures between 30 and 100°C. However, p. 394 of Volume 13 of the 1992 9<sup>th</sup> Edition *ASM Handbook* teaches that the aluminum alloy is introduced into the bath at temperatures between 25 and 60°C which overlaps with the range recited in instant claim 9.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

CF